

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**LISTING OF CLAIMS:**

1                   1.       (Currently amended) A method of forming a peptide conjugate  
2 comprising a covalent linkage between a modifying group and a glycosylated or non-  
3 glycosylated peptide, wherein said modifying group is conjugated to the peptide via a glycosyl  
4 linking group interposed between and covalently linked to both said peptide and said modifying  
5 group, said method comprising:

6                   a. contacting a cell with a modified sugar comprising a ~~sugar-sialic acid moiety~~  
7 ~~and covalently functionalized with~~ at least one modifying group, wherein said at least one  
8 modifying group is ~~a member independently selected from the group consisting of a water-~~  
9 ~~soluble polymer, a therapeutic moiety, a detectable label, a biomolecule and a targeting moiety;~~

10                  b. incubating said cell under conditions in which said cell internalizes said  
11 modified sugar;

12                  c. after step b, intracellularly contacting said modified sugar with a glycosylated  
13 or non-glycosylated peptide and a glycosyltransferase for which said modified sugar is a  
14 substrate, thereby forming said peptide conjugate.

1                   2.       (Original) The method of claim 1, further comprising, after step b and  
2 before step c, intracellularly contacting said modified sugar with a nucleotide and a nucleotidyl  
3 transferase, thereby forming a modified nucleotide sugar, wherein

4                   said modified sugar in step c is said modified nucleotide sugar.

1                   3.       (Original) The method of claim 1, further comprising isolating said  
2 peptide conjugate.

1                   4.       (Original) The method of claim 1, wherein said modified sugar is a  
2 modified nucleotide sugar.

1                   5.       (Original) The method of claim 1, wherein said modified sugar is a  
2 modified activated sugar.

1                   6.       (Original) The method of claim 1, wherein said glycosyl linking group is  
2 an intact glycosyl linking group.

1                   7.       (Original) The method of claim 1, wherein said modified sugar is a  
2 precursor modified sugar that is intracellularly converted to an intermediate modified sugar by  
3 cellular enzymes after step b and before step c.

1                   8.       (Original) The method of claim 7, wherein said intermediate modified  
2 sugar is a phosphorylated modified sugar, wherein said phosphorylated modified sugar is formed  
3 by intracellularly contacting said modified sugar with a kinase for which said modified sugar is a  
4 substrate, thereby forming a phosphorylated modified nucleotide sugar.

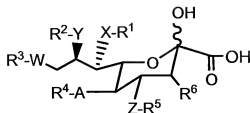
1                   9.       (Original) The method of claim 1, wherein said water-soluble polymer  
2 comprises poly(ethylene glycol).

1                   10.      (Original) The method of claim 10, wherein said poly(ethylene glycol)  
2 has a molecular weight distribution that is essentially homodisperse.

1                   11.      (Cancel)

1                   12.      (Cancel)

1                   13.      (Currently amended) The method of claim ~~11~~ 1, wherein said modified  
2 sugar has the formula



(II)

wherein,

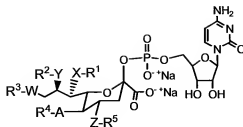
W, X, Y, Z, and A are members independently selected from a bond, substituted or unsubstituted alkylene, substituted or unsubstituted heteroalkylene, substituted or unsubstituted cycloalkylene, substituted or unsubstituted heterocycloalkylene, substituted or unsubstituted arylene, substituted or unsubstituted heteroarylene, -O-, -N(R<sup>7</sup>)-, -S-, and -CH<sub>2</sub>-, wherein,

R<sup>7</sup> is a member independently selected from hydrogen, substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl, substituted or unsubstituted cycloalkyl, substituted or unsubstituted heterocycloalkyl, substituted or unsubstituted aryl, and substituted or unsubstituted heteroaryl; and

R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup> and R<sup>6</sup> are members independently selected from -OH, -NH<sub>2</sub>, -SH, hydrogen, substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl, substituted or unsubstituted cycloalkyl, substituted or unsubstituted heterocycloalkyl, substituted or unsubstituted aryl, substituted or unsubstituted heteroaryl, and a ~~modifying group~~water-soluble polymer, wherein at least one or R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup> and R<sup>6</sup> is ~~said~~said modifying group water-soluble polymer.

14. (Cancel)

15. (Currently amended) The method of claim-~~14~~2, wherein said modified nucleotide sugar has the formula



(III)

wherein,

W, X, Y, Z, and A are members independently selected from a bond, substituted or unsubstituted alkylene, substituted or unsubstituted heteroalkylene, substituted or unsubstituted cycloalkylene, substituted or unsubstituted heterocycloalkylene, substituted or unsubstituted arylene, substituted or unsubstituted heteroarylene, -O-, -N(R<sup>7</sup>)-, -S-, and -CH<sub>2</sub>-, wherein, R<sup>7</sup> is a member independently selected from hydrogen, substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl, substituted or unsubstituted cycloalkyl, substituted or unsubstituted heterocycloalkyl, substituted or unsubstituted aryl, and substituted or unsubstituted heteroaryl; and R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, and R<sup>5</sup> are independently selected from -OH, -NH<sub>2</sub>, -SH, hydrogen, substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl, substituted or unsubstituted cycloalkyl, substituted or unsubstituted heterocycloalkyl, substituted or unsubstituted aryl, substituted or unsubstituted heteroaryl, and a modifying group water-soluble polymer, wherein at least one or R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, and R<sup>5</sup> is a modifying groupsaid water-soluble polymer.

16. (Cancel)

17. (Original) The method of claim 1, wherein said peptide is selected from the group consisting of granulocyte colony stimulating factor, interferon-alpha, interferon-beta, Factor VIIa, Factor IX, follicle stimulating hormone, erythropoietin, granulocyte macrophage colony stimulating factor, interferon-gamma, alpha-1-protease inhibitor, glucocerebrosidase, tissue plasminogen activator protein, interleukin-2, Factor VIII, chimeric tumor necrosis factor receptor, urokinase, chimeric anti-glycoprotein IIb/IIIa antibody, chimeric anti-HER2 antibody,

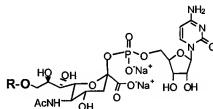
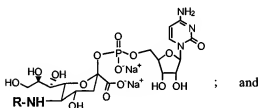
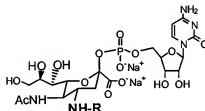
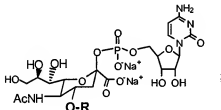
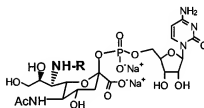
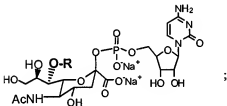
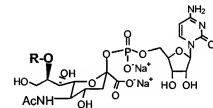
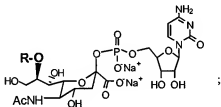
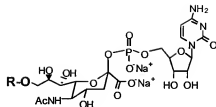
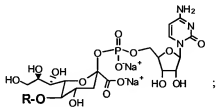
chimeric anti-respiratory syncytial virus antibody, chimeric anti-CD20 antibody, DNase,  
chimeric anti-tumor necrosis factor antibody, human insulin, hepatitis B sAg, interferon-omega,  
alpha-galactosidase A, alpha-iduronidase, anti-thrombin III, human chorionic gonadotropin, and  
human growth hormone.

**18.** (Withdrawn) A cell comprising a peptide conjugate, said peptide  
conjugate comprising:

- (i) a modifying group and a peptide, wherein said modifying group is linked to said  
peptide via a glycosyl linking group interposed between and covalently linked to  
both the peptide and said modifying group; and
- (ii) said modifying group is a member independently selected from the group consisting  
of a water-soluble polymer, a therapeutic moiety, a detectable label, and a  
targeting moiety.

**19.** (Withdrawn) The method of claim 18, wherein said glycosyl linking  
group is an intact glycosyl linking group.

**20.** (New) The method according to claim 2, said modified nucleotide sugar  
having a formula which is a member selected from:



wherein

R is said water-soluble polymer.

21. (New) The method according to claim 1 wherein said water-soluble polymer is a poly(alkylene oxide) selected from linear poly(alkylene oxide) and branched poly(alkylene oxide).

22. (New) The method according to claim 20 wherein said water-soluble polymer is a poly(alkylene oxide) selected from linear poly(alkylene oxide) and branched poly(alkylene oxide).

23. (New) The method according to claim 1 wherein said modified sugar has the formula:

